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latter to show that it belonged to a small group of mosses, § *Urocladium* of the genus *Pinnatella* Fleisch., (*Porotrichum* spp. auctorum), consisting of some half dozen species confined to the southeastern region of Asia (India, Malay Archipelago, Tonkin, Formosa, Japan), and especially characterized by an *intra-marginal* border or band of elongate cells, such as is found in a very few groups of mosses only (*Calymperes*, *Fissidens*, particularly). The Reuverian moss is scarcely distinguishable from *P. alopecurioides* (Hook.) Fleisch., except in the shorter nerve (35–40μ wide) and the leaf-cells slightly larger and with a pronounced tendency to be elliptical. These characters are probably quite sufficient to indicate a specific difference, but the relationship is close, and the fragment bears out in an interesting way the indications given by the rest of the plant remains.

"The second from Reuver is perhaps still more interesting. It is a species of *Mnium* of the § *Trachycystis*, represented at the present day by two species only, both confined to China (including Saghalin and the Amur region) and Japan. It differs however from both of these, and in conjunction with Mons. Cardot, who has kindly examined it, I propose the following name for it:

"*Mnium antiquorum* Card. & Dixon, sp. nov. A *M. microphyllo* Doz. & Molk. differt cellulis minoribus, parietibus magis incrassatis, atque foliis limbo incrassato bistratoso circumscriptis; a *M. flagellari* Sull. & Lesq. proximo foliis minoribus, irregulariter, obscure, simpliciter dentatis, nec spinulis bigeminatis armatis."

17 St. Matthew's Parade, Northampton, England.

THE MOSSES OF THE PECH CATALOGUE—MISSOURI

B. F. Bush

It is just a half a century since F. Pech, an obscure collector residing in Washington, D. C., prepared a list of plants collected by himself in various parts of Missouri, chiefly during a temporary residence at Louisiana, Missouri, and through several visits to Potosi, Washington County. Scarcely any one ever saw this catalogue and it has remained almost unknown up to the present. Tracy,[1] in his Catalogue of Missouri Plants in 1886, includes about 1725 species in his list, and in the preface he says "The following Catalogue is, I believe, the first publication of any list of the plants of the State, excepting a 'Partial Catalogue of the Plants of Illinois and Missouri,' published by Mr. Geyer about 1842 which has long been out of print." This statement is completely at variance with the Catalogue itself in which he cites many species of plants collected by Pech, a thing he could not have done, unless he had seen the Pech catalogue, either in the Englemann Library or in that of the Missouri Botanic Garden, and he makes no mention of it in the preface. As the Pech catalogue contains about 950 species of the higher plants of Missouri, Prof. Tracy added to the flora of the

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[1] Tracy, S. M. Catalogue of the Phanerogams and Vascular Cryptogamous Plants of Missouir. 1886.

State only about 775 species from over eighty counties represented in his catalogue.

Some five or six years after Prof. Tracy published his catalogue Prof. Trelease called my attention to the Pech Catalogue, which I then saw for the first time. The next mention of the Pech Catalogue is by Sargent[1] in his second paper on *Crataegus* in Missouri, page 79, where he says "The only publication devoted to the flora of northeastern Missouri, appeared in a list of the plants growing at Louisiana, on the Mississippi River, not far below Hannibal, in a 'Catalogue of the United States Plants in the Department of Agriculture,' issued by Isaac Newton, the authorship of which has been ascribed to Mr. F. Pech." In this paper Prof. Sargent commemorates Pech's name in *Crataegus Pechiana*, a species of the *viridis* group.

Excepting these two references, all mention of Pech's list seems to be wanting. The title of the list is "Catalogue of the United States Plants in the Department of Agriculture" and the date written in by Pech himself is November 1, 1866.

The preface to the Catalogue states that the Department of Agriculture having received a donation of a large collection of plants gathered in different states which, while not stating positively that this was the first collection of plants in the museum of the Department, plainly shows every evidence that it was the initial collection, and itis signed by Isaac Newton, Commissioner.

No mention is made of the donor in the preface of this Catalogue, nor is F. Pech's name anywhere mention ed in it, and it is to F. Pech himself that we owe the knowledge that he is the author of it, for I have seen two copies of it from Pech himself and inscribed "Pech Catalogue" with his autograph and regards to those to whom it was presented. The Catalogue is an obscure little pamphlet with pale blue covers, containing 25 pages of names of plants, the pages averaging about 65 names, so that the total number of species for Missouri as listed is not far short of twelve hundred, including the Musci, Hepatics, Lichens, Fungi, and Algae,of which there is a large representation, and for that day and time it was a won derful achievement.

As already noted, this Catalogue remained unknown, or almost unknown, up to the present time, and the reason for this was that the Department of Agriculture buildings were shortly afterwards destroyed by fire, and all copies of the Catalogue, except those distributed by Pech, and the entire Pech collection of plants and other natural history objects were lost. No trace of the Catalogue of the Pech collection of plants now remains at Washington, D. C., and the identity of his species must forever remain a question of doubt.

It is the mosses of this Catalogue that I particularly wish to discuss, and these number seventy-eight, of which sixty-six are from Missouri, a long list for Missouri at that time—and, indeed, a long list for any state. As but few of my readers have ever seen this Catalogue I herewith reproduce the list of mosses exactly as given, except that for convenience I have prefixed numbers to the names.

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[1] Sargent, C. S. Crataegus in Missouri II. Ann. Rpt. Mo. Bot. Gard. **22:** 78. Feb. 14 1912.

1.	Sphagnum	Cymbifolium, (Dill.)	Louisiana, Mo.
2.	Gymnostomum	Curvirostrum, (Hedw.)	Louisiana, Mo.
3.	——	Coccineum, (Pech)	Louisiana, Mo.
4.	Rhabdoweisia	Fugax, (B. & S.)	Louisiana, Mo.
5.	Dicranum	Scoparium, (Lin.)	Louisiana, Mo.
6.	——	Orthocarpon	Louisiana, Mo.
7.	Ceratodon	Purpureum, (Brid.)	Louisiana, Mo.
8.	Leucobryum	Glaucum, (Hamp.)	Louisiana, Mo.
9.	Fissidens	Subbasilaris, (Hedw.)	Louisiana, Mo.
10.	——	Taxifolius (Hedw.)	Louisiana, Mo.
11.	Trichostomum	Pallidum, (Hedw.)	Louisiana, Mo.
12.	Barbula	Unguiculata, (Hedw.)	Louisiana, Mo.
13.	Didymodon	Rubellus, (B. & S.)	Louisiana, Mo.
14.	——	Rupestre, (Pech)	Louisiana, Mo.
15.	Pottia	Truncata, (B. & S.)	Louisiana, Mo.
16.	Tetraphis	Pellucida, (Hedw.)	Louisiana, Mo.
17.	Encalypta	Ciliata, (Hedw.)	Louisiana, Mo.
18.	Drumondia	Clavellata, (Hooker)	Louisiana, Mo.
19.	Orthotrichum	Hutchinsiae, (Smith)	Louisiana, Mo.
20.	Schistidium	Apocarpon, (B. & S.)	Louisiana, Mo.
21.	Atrichum	Undulatum, (Beauv.)	Louisiana, Mo.
22.	Pogonatum	Brevicaule, (Brid.)	Louisiana, Mo.
23.	Polytrichum	Commune, (Lin.)	Louisiana, Mo.
24.	——	Formosum, (Hedw.)	Louisiana, Mo.
25.	——	Juniperinum, (Hedw.)	Louisiana, Mo.
26.	——	Piliferum, (Schreb.)	Louisiana, Mo.
27.	Timmia	Megapolitana, (Hedw.)	Louisiana, Mo.
28.	Aulacomnion	Heterostichum, (B. & S.)	Louisiana, Mo.
29.	——	Palustre, (Sch.)	Louisiana, Mo.
30.	Bryum	Roseum, (Schreb.)	Louisiana, Mo.
31.	——	Argenteum, (Lin.)	Louisiana, Mo.
32.	——	Cernuum, (Hedw.)	Louisiana, Mo.
33.	Mnium	Punctatum, (Hedw.)	Louisiana, Mo.
34.	——	Drumondii, (B. & S.)	Louisiana, Mo.
35.	——	Cuspidatum, (Hedw.)	Louisiana, Mo.
36.	Bartramia	Oederi, (Swartz.)	Louisiana, Mo.
37.	——	Pomiformis, (Hedw.)	Louisiana, Mo.
38.	——	Fontana, (Brid.)	Louisiana, Mo.
39.	Funaria	Hygrometrica, (Hedw.)	Louisiana, Mo.
40.	——	Flavicans, (Michx.)	Louisiana, Mo.
41.	Leucodon	Julaceus, (Sulliv.)	Louisiana, Mo.
42.	Anomodon	Obtusifolius, (B. & S.)	Louisiana, Mo.
43.	——	Attenuatus, (Hub.)	Louisiana, Mo.
44.	Leskea	Rostrata, (Hedw.)	Louisiana, Mo.
45.	Thelia	Hirtella, (Hedw.)	Louisiana, Mo.
46.	——	Lescurii, (Sull.)	Louisiana, Mo.
47.	Pylaisia	Intricata, (Bryol.)	Louisiana, Mo.
48.	Cylindrothecium	Cladorhizans, (Bryol.)	Louisiana, Mo.
49.	——	Seductrix, (Bryol.)	Louisiana, Mo.
50.	Climatium	Americanum, (Brid.)	Louisiana, Mo.
51.	Hypnum	Protensum, (Michx.)	Louisiana, Mo.
52.	——	Minutulum, (Hedw.)	Louisiana, Mo.
53.	——	Strigosum, (Hoffm.)	Louisiana, Mo.
54.	——	Boscii, (Schw.)	Louisiana, Mo.
55.	——	Triquetrum, (Lin.)	Louisiana, Mo.
56.	——	Recurvans, (Schw.)	Louisiana, Mo.

57.	———	Eugyrium, (Bryol.)	Louisiana, Mo.
58.	———	Acuminatum, (Beauv.)	Louisiana, Mo.
59.	———	Serpens, (Hedw.)	Louisiana, Mo.
60.	———	Radicale, (Brid.)	Louisiana, Mo.
61.	———	Noterophilum, (Sull.)	Louisiana, Mo.
62.	———	Denticulatum, (Lin.)	Louisiana, Mo.
63.	———	Sericeum, (Lin.)	Louisiana, Mo.
64.	———	Commutatum, (Hedw.)	Louisiana, Mo.
65.	———	Serrulatum, (Hedw.)	Louisiana, Mo.
66.	———	Polyanthos, (Schreb.)	Louisiana, Mo.

No. 1. Evidently intended for *Sphagnum cymbifolium* Ehrh., a species of the Northern and Eastern States, not collected by any other person in Missouri, and is probably an error of determination or of locality.

No. 2. Very doubtful, as this is a species of the Northern and Eastern states, although it has been reported from Allenton, Cliff Cave, and Crescent, in the Engelmann Botanical Club List.

No. 3. Is not identifiable, as it probably was only a herbarium name of Pech's.

No. 4. Very doubtful, as this is a species of the Northern and Eastern states, and has not since been collected in Missouri. Apparently Pech did not collect *Weisia viridula* (L.) Hedw., a very common species on the ground in meadows and pastures, so I presume he must have mistaken this for *Rhabdoweisia.*

No. 5. Possibly correct, although the typical form is rare or absent in Missouri, the variety *pallidum* L. & J. being common on rocky ground in Eastern Missouri.

No. 6. I am unable to determine whether Pech meant this for *Dicranum orthocarpum* Austin or for *Dicranum orthocarpum* Hedw., two species of the Northern and Eastern states not known for Missouri. Apparently Pech did not collect any species of *Dicranella*, one of which, *D. varia* (Hedw.) Schimper, is very common on the ground in Missouri, and it may be that this was collected and mistaken for a *Dicranum.*

No. 7. Evidently *Ceratodon purpureus* Brid., a common species on clay banks in woods in the State.

No. 8. Evidently intended for *Leucobryum glaucum* (L.) Schimp., a common species on rocky ground in woods in Eastern Missorui.

No. 9. Very doubtful, as this is a species of the Northern and Eastern states, although reported from Allenton in the Engelmann Botanical Club List.

No. 10. Probably correct as this is a common species on dry banks in woods in Missouri. Two other species of *Fissidens*, *F. adiantoides* and *decipiens* are common on the ground in woods in the State, but apparently overlooked by Pech.

No. 11. Probably correct, the *Ditrichum pallidum* (Screb.) Hampe, a fine conspicuous species on rocky ground throughout the State.

No. 12. Probably correct although not often collected on account of its small size. It is a little curious that Pech collected none of the larger species of *Barbula*, particularly *B. caespitosa* Schwaegr., a conspicuous species so common on rocky ground in Eastern Missouri.

No. 13. Very doubtful, as this is a species of the Northern and Eastern states; no specimens having been collected in Missouri since then that are certainly referable to this species, although specimens collected at Pleasant Grove, in 1900, have been referred to it.

No. 14. Not identifiable, as it probably was only a herbarium name of Pech's. The mere citing of Pech as the author of this species and of No. 3, and of a number of species of fungi farther on in this Catalogue, shows clearly that Pech was the author of the catalogue.

No. 15. Very doubtful, as this is a species of the Northern and Eastern states, and has not been collected since in the State. Apparently Pech did not recognize nor collect any species of Astomum, two species of which, *A. Sullivantii* Schimp., and *A. crispum* (Hedw.) Hampe, are common on the ground in pastures and fields in Missouri, and I suspect that one or the other of these was mistaken by Pech for *Pottia.*

No. 16. Possibly correct, as it has been collected at several localities in Eastern Missouri, but is very rare. Apparently Pech did not collect any species of *Physcomitrium*, although *P. turbinatum* (Rich.) Brid. is abundant in meadows and old fields everywhere in the State, and *P. Drummondii* Britton is common in similar situations.

No. 17. Very doubtful, as this is a species of the Northern and Eastern states, and has not been collected in the State since.

No. 18. Probably correct, as this species is common on trees in Eastern Missouri.

No. 19. Intended no doubt for *Weissia americana* Lindb., and very doubtful, as this is a species of the Northern and Eastern states, and it has not been collected again in the State. Pech apparently did not collect any species of *Orthotrichum*, although *O. Braunii* and *O. ohioense* are common on trees in Eastern Missouri, and *O. Porteri* Austin is very common on rocks throughout the State. It is possible Pech mistook one of these for *Weissia.*

No. 20. Probably correct, and what we now call *Grimmia apocarpa* (L.) Hedw., a common species on flat rocks throughout the State. Pech apparently did not find *G. campestris* Burch., a handsome attractive species common on sandstone boulders in Eastern Missouri.

No. 21. Probably correct, and what is now named *Catharinea undulata* (L.) W. & M., a conspicuous species on moist banks in woods, and very likely including the tall-capsuled form, *Catharinaea undulata altecristata* (R. & C.), (*Atrichum undulatum altecristatum* R. & C., Bot. Gaz. **15:** 58. 1890), which is usually found with the specific form and which had not yet been described. A still more common species of *Catharinaea, C. angustata* Brid., of similar situations, apparently was overlooked by Pech.

No. 22. Probably correct, as it has been found on sandy walls of ravines in several localities in Missouri.

No. 23. Very likely correct, as it is a very common species on rocky hills in Eastern Missouri.

No. 24. Probably correct and what is now called *Polytrichum ohioense* R. & C., a common species on rocky ground in Eastern Missouri.

No. 25. Evidently intended for *Polytrichum juniperinum* Willd., but very doubtful, as this is a species of the Northern and Eastern states, although reported for several localities around St. Louis in the Engelmann Botanical Club List.

No. 26. Very doubtful, as this is a species of the Northern and Eastern states and has not again been collected in Missouri.

No. 27. Very likely correct, as this is a large fine species of wet banks along the wooded bluffs of the Missouri and Mississippi rivers, although not often collected.

No. 28. Probably correct, as this species is common on the ground in Eastern Missouri.

No. 29. Evidently intended for *Aulacomnium palustre* (L.) Schwaegr., but very doubtful, as this species is not certainly known north of the lowlands of southeastern Missouri.

No. 30. Very likely correct and what is now known as *Bryum ontariense* Kindb., a fine handsome species of rich shaded woods along bluffs throughout the State, but not often collected.

No. 31. Without doubt correct, as the species is very common on the ground everywhere in the State.

No. 32. Evidently intended for *Bryum pendulum* Schimp. (*Bryum cernuum* Br. & Sch.), as there is no *Bryum cernuum* Hedw., and very doubtful, this being a species of the Northern and Eastern states and no other specimens have been collected in Eastern Missouri since then. Apparently Pech did not collect more than three species of *Bryum*, which is rather strange, considering the number in the State, some of them very common, particularly *B. caespiticium* L.

No. 33. Very doubtful, as this is a species of the Northern and Eastern states and no other specimens have been collected in the State.

No. 34. Very doubtful, as this is also a species of the Northern and Eastern states and no other specimens have been collected in Missouri, and I suspect that this and the last preceding have been collected elsewhere.

No. 35. No doubt correct, as this is a fine species on shaded ground throughout the State.

No. 36. Evidently intended for *Bartramia Oederiana* Swartz, but very doubtful, as this is a species of the Northern and Eastern states, and no other specimens have been collected in the State.

No. 37. Very likely correct, as this species is common on wet banks in Eastern Missouri.

No. 38. Evidently intended for *Philonotis fontana* (L.) Brid., and very probably correct, as this species is common in springy places throughout the State.

No. 39. Probably correct, as this species is very common on the ground everywhere in the State.

No. 40. Probably correct, although not often collected in Missouri.

No. 41. Probably correct, as this species is common on trees in Eastern Missouri.

No. 42. Very likely correct, as this species is common on rocks along the bluffs of the Missouri and Mississippi rivers.

No. 43. Very likely correct and more common than the last preceding species in similar situations.

No. 44. Evidently intended for *Anomodon rostratus* Hedw., a species still more common than the last two preceding. Apparently no species of *Leskea* were collected by Pech, although two species, *L. gracilescens* Hedw. and *L. polycarpa* Ehrh. are common on bases of trees in woods throughout the State.

No. 45. Possibly correct and evidently intended for *Thelia hirtella* Sulliv., as there was no genus *Thelia* in Hedwig's time, and I assume that Pech intended to write Sullivant instead of Hedwig.

No. 46. Possibly correct, and evidently intended for *Thelia Lescurii* Sulliv., thus showing that he was aware of the genus *Thelia* Sulliv. Another species of *Thelia*, *T. asprella* Sulliv., does not appear to have been collected by Pech, although it is very common on trees throughout the State. Concerning the date of Pech's collection, no evidence appears in the Pech Catalogue, but ulterior evidence exists showing that he made the collection during the years 1842 and 1843. As to the time when the Catalogue was prepared, the mere listing of *Thelia* alone indicated that it was after Sullivant established that genus in 1858, and after Pech had left Louisiana, Missouri, and had taken up his residence in Washington, D. C.

No. 47. Probably correct, and evidently intended for *Pylaisia intricata* Br. & Sch., which is now known as *Pylaisiella Schimperi* Grout, the common species on old logs and trees throughout the State, but not the *Pterigynandrum intricatum* of Hedwig, an European speices.

No. 48. Evidently intended for *Cylindrothecium cladorrhizans* Schimper, and what is now called *Entodon cladorrhizans* (Hedw.) C. Muell., and very probably correct, as it is a common species on rocks and trees throughout the State.

No. 49. Evidently intended for *Cylindrothecium seductrix* Sulliv., and what is now known as *Entodon seductrix* (Hedw.) C. Muell., another very common species in dense woods along the bluffs of the Missouri and Mississippi rivers. Another species of *Entodon*, *E. compressus* C. Muell., appears not to have been collected by Pech, although not uncommon on old logs in woods along the Missouri River bluffs to St. Louis. Still another species, *Platygyrium repens* (Brid.) Br. & Sch., sometimes called *Entodon repens* (Brid.) Grout, common on old logs in deep woods along the Missouri River bluffs, seems to have been overlooked by Pech.

No. 50. Certainly correct, and the only correct determination of this species in Missouri, all others naming this *Climacium dendroides* (L.) W. & M., which is a species of the Northern and Eastern states.

No. 51. Evidently intended for *Thuidium recognitum* (Hedw.) Lindb., and probably correct.

No. 52. Evidently intended for *Thuidium minutulum* (Hedw.) Br. & Sch., but very doubtful, as this is a species of the Northern and Eastern states and has not been collected again in Missouri. Several other species of *Thuidium* appear to have been overlooked by Pech, the common *T. microphyllum* (Sw.) Jacq. on old logs in deep woods and the beautiful conspicuous *T. delicatulum* (L.) Mitt., so common on the ground in Eastern Missouri.

No. 53. Evidently intended for *Hylocomium triquetrum* (L.) Br. & Sch., but not indicated for Missouri, or if so, very doubtful, although the species has been collected several times in Shannon County by the writer.

No. 54. Evidently intended for *Eurhynchium strigosum* Br. & Sch., and very likely correct, as this species is common on the ground in rich woods along the Missouri and Mississippi rivers.

No. 55. Evidently intended for *Eurhynchium Boscii* J. & S., now called *Cirriphyllum Boscii* (Schwaeg.) Grout, and very probably correct, as this fine large species is common on rocks in Eastern Missouri. No other species of *Eurhynchium* appears to have been collected by Pech, although *E. hians* and *E. praelongum* are common in the State on the ground in rich woods along the bluffs of the Missouri River.

No. 56. Evidently intended for *Raphidostegium recurvans* Br. & Sch., now called *Sematophyllum recurvans* (Rich.) Britton, and very doubtful, as this is a species of the Northern and Eastern states and has not since been collected in Missouri.

No. 57. Evidently intended for *Hypnum eugyrium* Schimp., and very doubtful, as this is a species of the Northern states and has not been collected since in this State.

No. 58. Evidently intended for *Brachythecium acuminatum* (Hedw.) Kindb., and very likely correct, as this is an extremely common species on wet banks in dense woods throughout the State. Apparently Pech did not collect any other species of *Brachythecium* although *B. oxycladon* (Brid.) J. & S. is very common on damp banks in rich woods, and *B. salebrosum* (Hoffm.) Br. & Sch. is fairly common in similar places.

No. 59. Evidently intended for *Amblystegium serpens* Br. & Sch. and probably correct, although I know of no other collection in Eastern Missouri.

No. 60. Evidently intended for *Amblystegium radicale* (L.) Br. & Sch., as I know of no *Hypnum radicale* Brid., and probably correct, although no other collection is known from Eastern Missouri.

No. 61. Evidently intended for *Amblystegium noterophilum* Holz., and very doubtful, as no other specimens are known from Eastern Missouri, although specimens collected at Webb City by the writer in 1909 are doubtfully referred here. Other species of *Amblystegium*, particularly *A. adnatum, fluviatile, orthocladon, riparium,* and *varium*, all very common species of wet woods or shallow water, appear to have been overlooked by Pech.

No. 62. Evidently intended for *Plagiothecium denticulatum* (L.) Br. & Sch., but very doubtful, as this is a species of the Northern and Eastern states, and I have seen no authentic specimens from this State.

No. 63. Evidently intended for *Homalothecium sericeum* (L.) Br. & Sch., but very doubtful, as it has not been collected again, and, if of this genus, is referable to *H. subcapillatum* (Hedw.) Sulliv.

No. 64. Evidently an error of determination or of locality, as no other collection of this species had been made in Missouri, and I suspect Pech had mistaken for this species either *H. chrysophyllum* Brid. or *H. hispidulum* Brid., neither of which, though very common, are listed by him. Another fine species of *Hypnum*, *H. curvifolium* Hedw., so common on rocky ground in Eastern Missouri, and *H. Patentiae* Lindb., of similar situations and range, appear to have been overlooked by Pech.

No. 65. Evidently intended for *Rhynchostegium serrulatum* L. & J., and very likely correct, as this species is common on the ground in woods throughout the State. Another species of *Rhynchostegium*, *R. deplanatum*, Schimp., common in similar situations, does not seem to have been collected by Pech.

No. 66. Evidently intended for *Pylaisia polyantha* (Schreb.) Br. & Sch., now known as *Pylaisiella polyantha* (Schreb.) Grout, but very doubtful, as this is a species of the Northern and Eastern states, and no other specimens are known from Missouri.

COURTNEY, MISSOURI.

MOSSES, HEPATICS, AND LICHENS OF THE QUARTZITE HILLS OF THE KAMOURASKA FORMATION, QUEBEC, CANADA

FR. M.-VICTORIN

In the counties of Montmagny, l'Islet, Kamouraska and Temiscouata, the St. Lawrence lowland is broken by a few sharp elevations that can hardly fail to attract the attention of the passing tourist on account of their very peculiar shape. The rocks of this formation have been of late studied by Mr. John A. Dresser of the Geological Survey[1] and provisionally separated from the Sillery in which they were included.

The Kamouraska formation as it is now commonly called, consists in a series of detached hills which are seldom more than 300 feet high and a couple of miles in length, and most of them are much smaller. In the ground plan they are much flattened ellipses, the longer axes running in a northeasterly direction. In structure they are sharply folded anticlines, slightly overturned towards the northwest, giving a general dip to the southeast of about 75°. They are also domed so as to give a pitch of 15° or 20° to the northeast and southwest near the ends of many of the hills. The course of the chief glaciation has been nearly at right angles to the trend of these ridges, and the central parts of some of the domes have been broken away by the ice, leaving the extreme ends of a hill pitching away from each other, sometimes separated by a drift covered interval. The Gros Pèlerin Island offers a good example of an ice-notched dome.

The Kamouraska quartzite is fine, even-grained, light-colored, and weathers to an almost pure white, very striking in the landscape. Quartz is usually the

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[1] John A. Dresser. Reconnaissance along the National Transcontinental Railway in Southern Quebec. Geol. Surv. Canada, Memoir No. 35. 1912.